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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/801,720	03/09/2001	Masaki Iijima	2001-0271A	5092

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WASHINGTON, DC 20006-1021

EXAMINER

STRICKLAND, JONAS N

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 07/25/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/801,720

Applicant(s)

IIJIMA ET AL.

Examiner

Jonas N. Strickland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Response to Amendment*

1. This Office Action is in response to the Information Disclosure Statement filed on 2/11/03 as Paper No. 4 and the amendment filed on 5/12/03 as Paper No. 5. Claims 1-7 are pending. Claims 1 and 5 have been amended. The claim objections of claims 5-7 and the 35 USC 112, second paragraph rejection of claim 5, and the 35 U.S.C 102(b) rejection of claims 1-6 have been withdrawn in view of Applicant's amendment.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carnell et al. (GB 2281077A) in view of Bernham et al. (US Patent 5,763,716).

Carnell et al. discloses a process for producing a synthesis gas (p. 1, lines 1-6 and p. 4, lines 11-15). Carnell et al. continues to disclose wherein a hydrocarbon feedstock stream containing hydrogen sulfide and carbon dioxide is passed through a sulfide removing device comprised of a hydrogen sulfide adsorbent and then adding carbon dioxide and steam over a steam reforming catalyst (a steam reforming reaction) (see abstract). Carnell et al. also discloses passing the natural gas through a combustion radiation portion and recovering energy from combustion products, and then subjecting the hydrogen sulfide stream to the hydrogen sulfide adsorbent, with respect to claim 2 (see abstract and p. 2, lines 34-37). With respect to claims 3 and 4, Carnell et al. discloses wherein the carbon dioxide stream is used as fuel and the carbon dioxide source from synthesis gas production (p. 3, lines 29 – p. 4, line 18). With respect to claim 5, Carnell et al. also discloses wherein the adsorbent is comprised of iron and zinc metal oxides (col. 4, lines 23-29). However, Carnell et al. does not disclose the molar ratio between methane and carbon dioxide, based on adding steam and carbon dioxide.

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Bernham et al. teaches a process wherein hydrogen and carbon monoxide are produced either by a steam reformer or partial oxidation unit for producing a synthesis gas containing the desired ratios of hydrogen and carbon monoxide (col. 5, lines 9-17). Furthermore, Bernham et al. continues to teach wherein carbon dioxide and steam are mixed with a hydrocarbon gas after sulfur removal (col. 7, lines 35-66). Bernham et al. continues to teach wherein the amount of carbon dioxide added to the stream can be adjusted (col. 8, lines 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art, to modify the teachings of Carnell et al., based on the teachings of Bernham et al., by maintaining a desired molar ratio between methane and carbon dioxide, based on the addition of carbon dioxide and steam, since Bernham et al. teaches a process wherein hydrogen and carbon monoxide may be produced from a hydrocarbon feedstock containing a sulfur compound and wherein a gas stream comprised of an amount of carbon dioxide, which may be varied, along with steam is added to the gas stream. It would have been obvious to one of ordinary skill in the art to vary the amount of carbon dioxide added to the gas stream in order to meet the instantly claimed molar ratio between methane and carbon dioxide. One of ordinary skill in the art would have expected the teachings of Carnell et al. and Bernham et al. to be similar and useful together, since both references teach wherein synthesis gas may be produced from a hydrocarbon feedstock, which contains a sulfur compound that is removed from the hydrocarbon feedstock.

***Allowable Subject Matter***

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6. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: (See previous Detailed Action).

***Response to Arguments***

8. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N. Strickland whose telephone number is 703-306-5692. The examiner can normally be reached on M-TH, 7:30-5:00, off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0661.

  
Jonas N. Strickland  
July 22, 2003

  
STANLEY S. SILVERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700